

ART. XXIV.—*Bovine Tuberculosis in Man; an Account of the Pathology of Suspected Cases.* By CHARLES CREIGHTON, M.D., M.A., Cantab., Demonstrator of Anatomy in the University of Cambridge. 8vo. pp. xi., 119. London: Macmillan & Co., 1881.

IN this book the author hopes to show that certain cases of tuberculosis in man can be proved by their morphological characters to have been derived from the tuberculosis of cattle. His attention was directed to the subject by the peculiar appearances presented in twelve cases which occurred at Addenbrooke's Hospital, Cambridge, England, following closely one after the other. For these cases, he cannot point out any definite source of infection, nor has he attempted to reproduce the disease in animals by experiment, but relies solely upon the specific and distinctive characters of the tuberculosis that affects the bovine species and the morphological identity which he will prove between that kind of tuberculosis and the disease that occurred in the group of twelve cases in man. As a basis of what he is about to prove, he regards the "structural mimicry that resides in infection" as of the first importance. He believes in the specific character of bovine tuberculosis, and mentions the various popular names of the disease: Meerlinsigkeit, Ger. (duckweed disease); Perl-sucht, Ger. (pearly disease); pommelière, Fr. (potato disease); angle-berries, Scotland; grapes, England; which, although differing among themselves, always refer to the peculiar growths upon the serous surfaces as characteristic. This is the substance of the first chapter, which, together with the whole book, could have been very much shortened without injuring his case, by a careful revision, especially in the matter of repetition of what has been once stated.

Chapter II. gives a "summary of the pathological anatomy of tuberculosis in the bovine species." The first point to which he calls attention is the change to be observed in the serous membranes. He quotes from Walley to show that in the early stages there is a diffuse and extensive capillary congestion, followed rapidly by the formation of innumerable minute, villous-like, vascular processes, giving to the membrane an appearance closely resembling the pile on red velvet. In the course of time the extreme vascularity of these little processes passes off, and they assume a definite shape and become converted into small, hard, globular bodies, of the colour of connective tissue, slightly gray and translucent, and constitute the so-called fibrous tubercle. When tuberculization is very rapid, distinct polypoid masses may be formed upon the membrane. And he quotes Virchow, as saying, "that whatever analogy this development may present in general with the tuberculosis of man, the size and pedunculated disposition of the nodules always afford a striking means of distinguishing them."

The condition of the lungs is next considered, and the description of Trasbot is followed, who states "that the tubercles in the lungs are of small size, and that the larger masses are formed from their confluence. When the tubercles are first formed, there are no vessels in their interior; in consequence of this they undergo degeneration in the centre, and are either calcified or softened. Calcification takes place in the middle, while the periphery remains fibrous or simulates a capsule. When softening takes place, it extends to the periphery, and the contents being removed

in some way there result closed cavities, which may reach the size of a walnut, from the confluence of several adjacent nodules. The walls of these cavities are quite smooth and thick." This, Dr. Creighton thinks, is the way in which the greater part of the cavities found in the lungs originate, and the idea that they are due to bronchiectasis (Virchow) he regards as arising from an error of observation. It is upon the occurrence of such closed vomicae in the lungs of his cases that he lays great weight in the identification of the process.

In cattle there is so often found associated disease of the lymph-glands, that another of the popular names is "gland disease." In his cases, again, he regards this association as an important factor.

In the other organs of cattle, the tubercles are found, but in the liver they are not encysted in the true sense of the word. Ulcers occur in the intestine, and the disease often invades the genito-urinary tract, and lastly, the mammary gland.

Chapter III. is a short *résumé* of the work of Gerlach on the communicability of bovine tuberculosis to other animals by experiment. And the point which the author wishes to call attention to is, that the disease produced in the animals experimented upon has the same character as the original, and this mimicry shows itself especially in growths on the pleura along the sharp margin of the lungs. It is true this is but a very feeble reproduction of the original, in fact, a mimicry, but, nevertheless, is to be "regarded as the beginning of Perlsucht."

In Chapter IV. he gives the clinical history and anatomical appearances as found by him in twelve cases of tuberculosis in man. The histology is preserved for a subsequent chapter. The clinical history throws but little light upon the cases except to show that with one exception they were quite acute (which it will be remembered is the contrary of the course taken by the disease in cattle). The specific nature of the affection is based simply upon the occurrence of more or less flattened or polypoid nodules upon the serous surfaces, and especially along the free edge of the lung, with wedge-shaped medullary looking masses and closed cavities having thickened walls in the substance of the lungs, giving to it a peculiar "crumpet-like" appearance.

In Case 1 there were simply nodules in the lung. Case 2 had nodules in the lung, with flat tubercles on the serous surfaces. Case 3 had cheesy bronchial glands, with white, sessile, and even pedunculated tubercles on the pleura. There were large white tubercles in the lungs. In Case 4 a lung contained several sloughing and putrid cavities, with softened packets of bronchial glands, and large round tubercles in the parenchyma. In Case 5 there was found an enormous cluster of enlarged portal glands containing round nodules. Bronchial and mesenteric glands also enlarged. Tubercles upon the serous surfaces, some distinctly pedunculated, also in the lungs together with closed vomicae. Case 6 presented nothing upon the serous surface, the identity resting upon the occurrence of closed cavities in the left apex ("Crumpet" lung). In Case 7 the lungs were found extensively destroyed, the left upper lobe being replaced by a cavity, and a second the size of a billiard ball occupying the right side. The walls of these cavities were dense and cartilaginous. From the pleura hung a number of flat pendulous nodules, and the lower margin of one lung had a beaded appearance. In Case 8 occur again what the author considers as characteristic outgrowths from the pleural surface, with white and centrally softened tubercles in the lung. The bronchial glands were

also enlarged and softened. Case 9 is one of cardiac disease in which were seen the "duckweed" variety of pleural outgrowths, and also the rounded and beaded condition of the free edge. In the parenchyma of the lung there were whitish tubercles of considerable size, and from the peritoneal surface flat excrescences. Mesenteric glands enlarged and calcified. In Case 10 there were tubercles of the lungs, with a wedge-shaped infarct of new growth in one of them. Again tubercles and flat masses on the peritoneum. Cases 11 and 12 had whitish-gray medullary masses and wedge-shaped masses in the lungs. The glands were especially affected, but there was very little of the peculiar outgrowth from the serous surfaces, while white medullary swelling and ulceration of the follicles of the intestine were noticed.

In five of these twelve cases the "characteristic" pleural outgrowths are wanting, or only very slightly marked, and the specific nature of the affection rests upon the peculiar shape of the masses in the parenchyma, which have a tendency to form closed cavities with smooth walls.

Chapter V. is devoted to a consideration of the formations on the serous membranes. It is but an expansion of what has already been stated, viz., that the tubercles begin as vascular excrescences, and their occurrence on the thin margin of the lung is brought forward as marks of their specific character. He acknowledges that in but three of his cases (2, 5, and 10) large flat tubercles can be said to have been really formed; but thinks "that the slight indications found on the lungs in the other cases are something special and specific beyond doubt." He, however, does not give the finer histological appearances which would enable them to be distinguished from the results of pleurisy or peritonitis.

Chapter VI. takes up the disease in the lungs. He supports the gross appearances in his cases on the description of Trasbot, already often quoted, of the closed vomicae in the lungs of cattle, and his histological evidence rests on the similarity which exists in the structure of the tubercles in his cases and those which occurred in the lungs of rabbits that had been fed on masses of *Perlsucht* by Orth;—the distinctive point being the presence of great numbers of giant cells of a perfect type in the nodules. He, however, admits that these are not pathognomonic, but are only of value when taken in connection with the presence of the characteristic outgrowths from the serous surfaces and the affection of the glands. The occurrence of such large numbers of giant cells he considers as standing in direct relation with the attempts at vascularization, as shown by the large number of vessels at the periphery of the tubercles.

Chapter VII. treats of the condition of the lymphatic glands. He shows the similarity which exists between the affected glands in his cases and in *Perlsucht* both in the gross and microscopic appearance, and he considers that the tuberculosis of the lymphatic glands is not the origin of the tuberculosis elsewhere in the body, as has been held by many, but is a co-ordinate part of a general infection. The evidence presented in this chapter is one derived principally from analogy, especially with syphilis, which he considers this disease closely resembles in its course.

In Chapter VIII. an account is given of the intestinal lesion which he found in three of the twelve cases. In two of these the lesions were recent, in one consisting merely of swelling of the follicles with occasional loss of substance; in the other the ulcerations were of the ordinary round kind. He dwells upon the third case at considerable length. It was that of a woman who had been in the hospital for what was diagnosticated as

typhoid fever. She returned seven months later with symptoms of rather a rheumatic character, but before her death the diagnosis of acute miliary tuberculosis was established. There was found at the autopsy an eruption of flat nodules on the peritoneum, two healed ulcers of the ileum, over the base of which, between the outer muscular coat and the serous surface, was a cicatricial thickening in which was seen the peculiar arrangement of epithelioid about giant cells, which he considers characteristic of bovine tuberculosis. This case he regards not as one of typhoid fever from the start, but as *Perlsucht*. His wording, however, is a little doubtful, for he says (p. 88): "they were originally ulcers of typhoid fever, but in their healing, or in their subsequent induration, they retained their specific infective property, which afterwards manifested itself in the general tuberculosis," etc.

The rest of the chapter he devotes to attempting to show that many recorded cases of typhoid fever in which tubercles have been found post-mortem are probably bovine tuberculosis. The account upon which he lays the greatest stress is the report of 20 cases which occurred at the Bristol Infirmary, and in which the clinical symptoms were regarded as typhoid fever. Four of the boys died, and there were found tubercles of the serous surfaces as well as ulceration of Peyer's patches in all four cases. This he regards as evidence of bovine tuberculosis, and considers the epidemic as one of that disease which the boys had contracted from drinking infected milk, although defects in the drainage of the school were discovered. In the other 16 cases the disease was of a lighter character, and ended in recovery.

Chapter IX., and last, is a summary of what has already been said.

In reviewing the evidence presented to us by Dr. Creighton, we feel, as he seems to, the rather slim foundation on which he has rested his assumptions. His argument rests first upon the fact that the *Perlsucht* of cattle can be produced in other animals by feeding them with masses of the disease, and with milk, the latter being presumably the way in which man could acquire it. The experiments of Gerlach, Klebs, Orth, and Virchow, are held as establishing this fact: but of these, the series conducted by Virchow is the latest, and by far the most complete, and the very doubtful success which has attended it makes the question at least still to be considered as *sub judice*.

Turning to the part which he has done himself, it is a striking fact that there are apparently no cases which have come under his observation since his attention was directed to the subject, but what have presented to him the characteristic appearance of bovine tuberculosis, and yet he does not deny the existence of cases originating in other ways. Among his cases are certainly some which need stronger confirmation; take Case 4 (p. 32), for example, which is reported simply as having several sloughing or putrid cavities with large round tubercles in the intervening lung substance. No account is given of the microscopic appearances, and there is no way without this careful examination by which such cavities and nodules can be distinguished from those resulting from chronic, miliary, and cheesy pneumonia. Certainly a case like this shows a biased judgment on the part of the observer, and makes us hesitate in accepting his conclusions without the fullest proof. It looks almost as if he had taken his cases from one "dust bin of pathology" (as he calls tuberculosis), and had transferred them to another dust bin called bovine tuberculosis. The value of the mimicry of infection must not be rated too highly in dis-

tinguishing between different kinds of tuberculosis, when it must first be shown that what are regarded as the expression of a specific tuberculosis ("the duckweed" and "pearls" on the serosa in his cases) are not the products of chronic inflammatory changes in which tubercles have been developed secondarily. The proof of the anatomical identity and the possibility of distinguishing post-mortem cases of bovine tuberculosis in man, must rest on finer and more conclusive evidence than that presented by Dr. Creighton. His suggestion, however, is very valuable, and he certainly deserves the thanks of all pathologists for calling attention to the subject in so forcible a way, and although we cannot agree that the proof he has presented is at all complete, we fully appreciate his labour and zeal in giving such an attractive and well published book.

W. F. W.

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ART. XXV.—*St. Bartholomew's Hospital Reports.* Edited by W. S. CHURCH, M.D., and ALFRED WILLETT, F.R.C.S. Vol. XVI. 8vo. pp. xxvii., 363, 123. London: Smith, Elder & Co., 1880.

IN noticing the contents of this serial volume, we shall pursue the course usually adopted in this Journal, and, separating the surgical and medical papers, speak first of those possessing special interest to surgeons, although this year some of the papers we class as surgical are contributed by medical men.

The first article is *A Contribution to the Minute Anatomy of the Organ of Jacobson*, by E. KLEIN, M.D., F.R.S. As its title indicates it is an examination of Jacobson's gland, and in it are well exhibited the scientific thoroughness and ability of its author. As the result of his observations Mr. Klein is not disposed to adopt the somewhat fanciful view of Kölliker, that the function of this body is a quasi-subjective one, namely, to ascertain the chemical constitution of the animal's own juices, but is rather inclined to think that its rudimentary condition in man points to its having something to do with the very high development of the sense of smell possessed by some of the brutes. The suggestion is modestly made, but seems quite reasonable.

*Foreign Bodies in the Air-passages*, by SAMUEL GEE, M.D. While contributed by a medical man, the subject of this paper is one with which surgeons generally have to do. It consists of an account of two cases, in one of which a fruit stone, in the other a piece of bone, passed through the larynx. In the first case tracheotomy was unsuccessfully performed, and the foreign body was found in the right bronchus after the death of the child. The second case had a more happy issue, the piece of bone, deprived of all but its calcareous framework, being coughed up about one month after its entrance into the throat. The case is narrated in the words of the sufferer, a clergyman, and is therefore void of any careful or accurate description.

The next article is of decided value, being headed *Some Cases of Abdominal Surgery (with remarks)*, by HOWARD MARSH. The first of the cases was one of intestinal obstruction, in which an internal tumour could be made out through the abdominal walls, and in which there was also a small, tense, and apparently strangulated hernia. Although the sensations of pain were all referred to the abdominal tumour it was thought